



National Weather Service Binghamton, NY

www.weather.gov/bgm



Coming Soon To A Radar Near You – Dual Pol

Priscilla Nicosia, Meteorologist

Starting in early 2011, the National Weather Service will begin to upgrade existing NEXRAD Doppler radars to dual-polarimetric (dual-pol) capabilities. Weather radars transmit horizontal radio waves called pulses that bounce off precipitation and other objects in the atmosphere. The power returned to the radar from these "reflected" pulses is referred to as reflectivity. The radar then calculates the distance and intensity of the object, based on the power returned, and displays it on a map. Doppler radar is also capable of measuring the motion of these objects. Doppler radar then converts this motion to velocity.

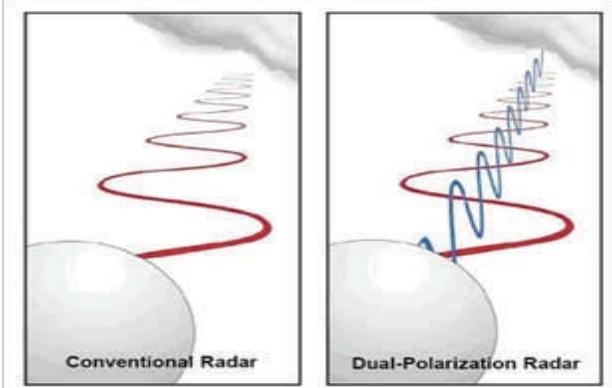
Dual-polarization radars transmit and receive pulses with both horizontal and vertical orientations. This ability gives greater information on the size and shape of droplets in the atmosphere, as well as the density of these drops. This not only will help to improve precipitation estimates, it will also help discriminate between liquid and frozen precipitation.

The use of dual-polarization continues in Norman, OK, the site of the original implementation which began in the Spring of 2003. After many years of testing, NEXRAD Doppler radars across the country will be upgraded to dual-polarimetric capabilities

beginning in early 2011. The National Weather Service in Binghamton is scheduled to receive the upgrade in late June 2011. The upgrade takes approximately 2 weeks to install and configure.

The following benefits have been documented with initial testing of dual-pol radars:

- Improved accuracy of precipitation estimates.
- Discrimination between heavy rain and hail, improving flash flood detection.
- Discrimination between different types of precipitation, whether frozen or liquid.
- Improved detection of aviation hazards such as birds.
- Detection of aircraft icing conditions.
- Increase in confidence in radar data, contributing to increased lead times in flash flood and winter weather warnings.



Dual-Polarization Radar transmits both horizontal and vertical pulses. This technique gives meteorologists better information regarding the size, shape, and density of rain droplets.



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"Turn Around Don't Drown" in the Upper Susquehanna River Basin

David Nicosia, Warning Coordination Meteorologist

A total of 54 "When Flooded, Turn Around Don't Drown" road signs will be put up along flood prone roadways in 5 counties in the Upper Susquehanna River Basin of New York and northern Pennsylvania. The project was led by the National Weather Service (NWS) in Binghamton with funding provided by the Susquehanna River Basin Commission (SRBC). This project is part of an ongoing joint SRBC-NWS flood safety awareness effort.

The road signs are particu-

larly important because the Susquehanna River Basin is one of the most flood prone river basins in the nation. Additionally, flooding kills more people than any other storm-related hazard with almost ½ of these flood deaths related to people trying to drive through flooded roadways. The intent of the signs is to warn drivers of flood prone areas and hopefully keep people from driving through water covered roads. In this way, it is believed these signs will ultimately save lives and keep people out of trouble.

The SRBC and NWS worked with local county emergency management to determine which counties receive the signs. The 5 counties that have received these signs are: Broome, Tioga and Steuben in New York

and Susquehanna and Wyoming Counties in Pennsylvania. The emergency manager for each of these counties will be putting these signs up on their most flood prone roadways.

The road signs will be put up in the following towns and cities within each of these counties:

Broome – Binghamton, Conklin, Maine, Vestal and Windsor

Steuben – Adrian, Campbell, E. Campbell, Rathbone and S. Corning

Tioga NY – Nichols, Owego, Spencer and Tioga Center

Susquehanna – Franklin Forks, Hallstead, Lanesboro and New Milford

Wyoming – Falls, Forkston and Tunkhannock

NOAA is projecting a 70 percent probability of the following ranges:

14 to 23 Named Storms

8 to 14 Hurricanes

3 to 7 could be Major Hurricanes



Hurricane Fred at peak intensity on September 9,

NOAA Expects Busy Atlantic Hurricane Season

An "active to extremely active" hurricane season is expected for the Atlantic Basin this year according to the seasonal outlook issued today by NOAA's Climate Prediction Center – a division of the National Weather Service. As with every hurricane season, this outlook underscores the importance of having a hurricane preparedness plan in place. Across the entire Atlantic Basin for the six-month season, which begins June 1, NOAA is projecting a 70 percent probability of the following ranges:

- 14 to 23 Named Storms (top winds of 39 mph or higher), including:
- 8 to 14 Hurricanes (top winds of 74 mph or higher), of which: 3 to 7 could be Major Hurricanes (Category 3, 4 or 5; winds of at least 111 mph)

"If this outlook holds true, this season could be one of the more active on record," said Jane Lubchenco, Ph.D., Under Secretary of Commerce for Oceans and Atmosphere and NOAA Administrator. "The greater likeli-

hood of storms brings an increased risk of a landfall. In short, we urge everyone to be prepared."

The outlook ranges exceed the seasonal average of 11 named storms, six hurricanes and two major hurricanes. Expected factors supporting this outlook are:

- **Upper atmospheric winds conducive for storms.** Wind shear, which can tear apart storms, will be weaker since El Niño in the eastern Pacific has dissipated. Strong wind shear helped suppress storm development during the 2009 hurricane season.
- **Warm Atlantic Ocean water.** Sea surface temperatures are expected to remain above average where storms often develop and move across the Atlantic. Record warm temperatures – up to four degrees Fahrenheit above average – are now present in this region.
- **High activity era continues.** Since 1995, the tropical multi-decadal signal has brought favorable ocean and atmospheric conditions in sync, leading to more

active hurricane seasons. Eight of the last 15 seasons rank in the top ten for the most named storms with 2005 in first place with 28 named storms.

"The main uncertainty in this outlook is how much above normal the season will be. Whether or not we approach the high end of the predicted ranges depends partly on whether or not La Niña develops this summer," said Gerry Bell, Ph.D., lead seasonal hurricane forecaster at NOAA's Climate Prediction Center. "At present we are in a neutral state, but conditions are becoming increasingly favorable for La Niña to develop."

For more information during the 2010 hurricane season, please visit:

www.nhc.noaa.gov

Product Spotlight – SPS

Priscilla Nicosia, Meteorologist

NWS Binghamton will issue Special Weather Statements (SPS) during hazardous short-term weather events. Initially, the SPS was utilized to provide Severe Weather Outlooks. These outlooks were issued 1-2 days in advance of expected severe weather to provide a "heads-up" to customers. With the implementation of the Hazardous Weather Outlook (HWO) as the primary means of providing outlook information, the role of the SPS has changed.

If hazardous severe weather is expected in the next 24 hours, the HWO will be color-coded on the point and click map located on the front page of the NWS Bing-

hamton website. If weather hazards are expected in the 2-7 day timeframe, a banner located above the map



will turn red to indicate a potential weather hazard.

The SPS is now utilized for short-term hazardous

weather events. These statements are still issued 12 hours prior to convection, if severe weather is possible. The SPS will state expected thunderstorm initiation time, the main threats, and the area expected to be targeted, along with any additional information deemed necessary.

However, the primary focus of the Special Weather Statement has now shifted to "near-severe" thunderstorms. That is, convection that is strong but below severe limits, or convection that has the potential to become severe. This is typically identified as thunderstorms with wind gusts

from 40-57 MPH and capable of causing tree damage and/or thunderstorms producing hail ranging from pea size to nickel size. Special Weather Statements will also be issued for storms producing a significant amount of cloud-to-ground lightning and locally heavy rainfall.

"The primary focus of the Special Weather Statement has now shifted to "near-severe" thunderstorms."

Severe Weather Terminology

Severe Thunderstorms	Thunderstorms that produce winds of 58 MPH or greater and/or hail one inch in diameter or larger. A Severe Thunderstorm Watch means that severe thunderstorms are possible over the next several hours, typically no more than six hours. You should continue with your daily routine, but be prepared to move to a place of safety should a severe thunderstorm warning be issued. A Severe Thunderstorm Warning means that severe thunderstorms are imminent or occurring. A warning implies a significant threat to life and property. You should seek shelter immediately when a severe thunderstorm warning is issued.
Tornadoes	Violently rotating columns of air in contact with the ground and attached to the cloud base above. Like a severe thunderstorm watch, a Tornado Watch means that tornadoes are possible over the next several hours, again usually no more than six hours. A Tornado Warning means that a tornado is imminent or occurring. A tornado warning implies an immediate threat to life and property. Take shelter immediately.
Flash Flooding	A rapid rise, within six hours, of water along a stream or low-lying urban area. The most common cause of flash flooding is heavy downpours associated with thunderstorms. A Flash Flood Watch means that conditions are favorable for flash flooding. Continue with your daily activities, but be prepared to head to a place of safety should a flash flood warning be issued. A Flash Flood Warning means that flooding is imminent or occurring. Floodwaters can rise rapidly. Seek shelter immediately when a flash flood warning is issued.
River Flooding	A flood that takes longer to develop (more than 6 hours) and often days or even weeks in some instances. River flooding occurs on the larger rivers and lakes in our area.

The importance of NOAA Weather Radio...your first source for critical weather information!

Christopher Gitro, Meteorologist

Since the inception of NOAA Weather Radio in the Binghamton area in the late 1970s, NOAA Weather Radio has been broadcasting weather information almost continuously from atop Ingraham Hill. Since that time, the NOAA Weather Radio network has grown tremendously not only in the central New York and northeast Pennsylvania regions, but across the country as well. To date there are over 1000 NOAA Weather Radio transmitters scattered throughout the U.S. and most places within the U.S. are covered by one or more transmitters. NOAA Weather Radio provides a vital function when threatening and hazardous weather approaches, as regular programming is automatically interrupted and updated each and every time a critical weather message such as a severe thunderstorm or tornado warning is issued.

In central New York and northeast Pennsylvania we are extremely fortunate to have a dense network of NOAA Weather Radio transmitters scattered throughout the respective regions. The National Weather Service office in Binghamton is responsible for the programming of 13 separate transmitters in this region. During severe weather episodes, one individual is automatically assigned to the task of manning the NOAA Weather Radio console and his/her sole responsibility is to ensure that critical products such as severe thunderstorm and tornado warnings are making their way to the weather radio transmitters in a timely manner. This person also ensures that updates to previously issued warnings are being transmitted over the airwaves as well.

In addition to standard weather information such as

seven day weather forecasts, weather synopses, marine weather forecasts for Lake Ontario, and daily and monthly climatological information, additional products have the ability to find their way over the airwaves. NOAA Weather Radio is part of the Emergency Alert System (EAS) and also serves as a method of broadcasting critical information which may not be weather related. For instance, if a small child has been abducted and the local or state authorities issue an amber alert, NOAA Weather Radio can be automatically interrupted with the amber alert bulletin giving the latest information regarding the abduction. Other interruptions that may be transmitted over the NOAA Weather Radio airwaves include information about toxic chemical and oil spills, 911 emergency telephone outages, earthquake information, and information regarding terrorist attacks should they occur.

Over the past 35 years, technology for home receivers of NOAA Weather Radio broadcasts has greatly improved. The recent advent of Specific Area Message Encoding (SAME) now allows the radio operator the ability to program a NOAA Weather Radio for a specific location. If, for example, a person lived in Broome County, the NOAA Weather Radio receiver could be programmed with the Broome County SAME code and upon doing so, only warnings and alerts affecting Broome County would be alerted by the receiver. SAME coding has now made it possible to leave a radio unattended and when a warning or alert has been issued for a specific area the radio is programmed for, the radio would automatically activate with an alarm signal alerting the radio

owner of the new alert or warning.

This feature has dramatically improved NOAA Weather Radio quality in the fact that the owner can now leave a programmed radio near his/her bed and have confidence that they will be woken up in the middle of the night to the alert signal of a new warning or alert.

NOAA Weather Radio continues to be an excellent source for the latest weather information across the U.S. Users of NOAA Weather Radio can take their radios with them as they travel across the country knowing they will always

have the latest weather information at their fingertips.

The latest information such as severe thunderstorm and tornado warnings automatically get transmitted over the airwaves as soon as the warnings are issued. The information broadcast over NOAA Weather Radio could essentially mean the difference of surviving a natural disaster simply because you had the latest information as soon as it was broadcast!

If you should have any questions regarding NOAA Weather Radio, please contact the National Weather Service in Binghamton at 607-770-9531 x 223.

WXL-38 Binghamton 162.475 MHz

WXN-29 Call Hill 162.425 MHz

WWH-35 Cooperstown 162.450 MHz

WXM-31 Elmira 162.400 MHz

WNG-705 Honesdale 162.450 MHz

WXN-59 Ithaca 162.500 MHz

WXN-55 Mt. Washington 162.450 MHz

KHC-49 Norwich 162.525 MHz

WWF-43 Stamford 162.400 MHz

WXL-31 Syracuse 162.550 MHz

WXM-95 Towanda 162.525 MHz

WWH-34 Walton 162.425 MHz

WXL-43 Wilkes-Barre/Scranton 162.550 MHz

Lightning Safety

Christopher Gitro, Meteorologist



Did you know that lightning claims the lives of over 70 Americans and injures more than 300 each year? More deadly than tornadoes and hurricanes, lightning is the second leading killer of people across the United States from weather related events. There are however many different precautions that people can take to minimize the risk of suffering injuries or even death from lightning.

What is lightning?

Lightning is caused by separate positively and negatively charged electrical particles in the atmosphere. As the charge build up increases, they are eventually released in the form of lightning. As lightning travels through the air, the surrounding air is rapidly heated to over 50,000 degrees Fahrenheit. This rapid heating produces a shock wave, resulting in what you hear as thunder. As the lightning is released, it zigzags its way towards the earth's surface, traveling along randomly charged particles in the process.

Lightning Safety

There are precautions you can do to minimize the risk of being struck by lightning. If you're out in the open and you hear thunder, seek shelter in a sturdy structure away from windows. Avoid talking on the phone, washing your hands, or taking a shower. Try to stay away from any objects that may conduct electrical charges into your house or building. If caught outside and you are unable to find shelter, avoid begin the tallest object. Never seek shelter under a tree or next to any metal objects such as flag poles or radio towers. If unable to find a structure and a vehicle is available, go to the vehicle and close all the windows and avoid touching any metal objects which may conduct electricity. If outside and you begin to feel a tingling sensation and your hair begins to stand up, immediately drop to the ground and squat on the balls of your feet. Place your hands on your knees with your head between them. Make yourself the smallest target possible and DO NOT LAY FLAT ON THE GROUND!

When Thunder Roars, Head Indoors!!

Between the years of 1995-2009, there were 30 lightning deaths in New York and Pennsylvania. To help keep safe during thunderstorms, when you hear thunder, you are close enough to be struck by lightning, head indoors immediately. When thunder roars, head indoors! You should stay inside until at least 30 minutes after the last sound of thunder and/or lightning flash was seen.



Summary

As you can see, lightning is a serious threat to people living in central New York and northeast Pennsylvania, especially those partaking in outdoor activities during the summer months. When thunderstorms threaten your area, seek safety indoors and stay there until 30 minutes after the last thunder was heard and/or lightning was seen. If caught outside, crouch to the ground with your hands over your knees and your head in between. If these and other safety precautions are taken, the number of lightning related injuries will hopefully decrease across the United States.

New Severe Hail Criterion

Priscilla Nicosia, Meteorologist

The National Weather Service's severe hail criterion changed nationwide as of January 5, 2010. The minimum size has changed from 0.75 inches (penny-size) to 1.00 inches (quarter-size).

A severe thunderstorm warning is defined as a thunderstorm that produces damaging wind gusts in excess of 57 MPH and large hail. Previously, the NWS issued severe thunderstorm warnings for hail expected

to reach penny size. However, recent research indicates that damage does not occur until hail reaches quarter size. Thus, the criterion was changed based on this research, along with requests by emergency management and media partners.

Over the past several years, NWS offices that served areas in Kansas experimented with an increase in minimum severe hail size.



This experiment ultimately expanded to include other areas in the central and western U.S. During these experiments media partners stated that user feedback suggests warnings are now more meaningful .



Emergency management officials also state that severe thunderstorm warnings carry more weight. In addition, storm spotters can concentrate on more significant events.

National Weather Service Mission

"The National Weather Service (NWS) provides weather, hydrologic, and climate forecasts and warnings for the United States, its territories, adjacent waters and ocean areas, for the protection of life and property and the enhancement of the national economy. NWS data and products form a national information database and infrastructure which can be used by other governmental agencies, the private sector, the public, and the global community."

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<http://weather.gov/bgm>



Upcoming Outreach and SKYWARN

Basic SKYWARN training session, June 8th, 2010 6-8 pm

Location: Syracuse, NY

Instructor: David Morford, Meteorologist.

Advanced SKYWARN training session, June 15th, 2010 630-830 pm

Location: Susquehanna County EMA, 31 Public Ave, Montrose, PA

Instructor: David Nicosia, Warning Coordination Meteorologist.

Flood SKYWARN training session, June 21st, 2010 7-9 pm EDT

Location: Hancock Fire Station, 24501 State Hwy 97, Hancock, NY

Instructor: David Nicosia, Warning Coordination Meteorologist



For the latest information from NWS Binghamton's Skywarn Program:

http://www.erh.noaa.gov/bgm/spotters_skywarn/index.shtml

